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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,958	12/30/1999	Rex M. Bitner	16026-9038	7117

7590 04/05/2002

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EXAMINER
SISSON, BRADLEY L

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 04/05/2002 20

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/475,958	BITNER ET AL.	
	Examiner	Art Unit	
	Bradley L. Sisson	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☒ Interview Summary (PTO-413) Paper No(s). *19* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Location of Application

1. The location of the subject application has changed. The subject application is now located in Group 1630, Art Unit 1634.

Specification

2. The disclosure is objected to because of the following informalities: The specification does not reflect the current status of US patent applications that are referenced therein.

Appropriate correction is required.

Priority

3. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 1-25 and 27-29 of this application. See the rejection of claims under 35 USC 112, first paragraph, below.

Claim Objections

4. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. As presently worded, claim 1 requires the cells to "selectively adsorb directly to the particles." Claim 7, which depends from claim 1, requires that these particles have a spacer comprised of a series of amino acids that are bound to the surface of the

particles and that the cells will be binding to the spacer, and not directly to the particle's surface. Such added limitation effectively broadens the scope of the claim to include particles that have reactive moieties bound to their surface and thereby nullify the aspect of the cells, or proteins, binding "directly to the particles."

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-7, 21-25 and 27-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As presently claimed, the method of said claims 1-7, 21-25 and 27-29 are drawn to methods wherein cells membranes, be they intact or disrupted, bind preferentially to either pH-dependent ion exchange particles or silica magnetic particles. In dependent claims is it further required that these particles have on their surface groups selected from the group consisting of glycidyl-histidine or glycidyl-alanine. While the specification has been found to contain assertions tht such separation is achieved, attention is directed to US Patent 6,310,199 B1 which teaches by way of example that these very particles, and indeed these very modified groups, do not bind to proteins as asserted presently but instead bind to the DNA. In support of this position attention is directed to column 18 of the '199 patent wherein it is stated:

> The silica magnetic pH dependent ion exchange particles synthesized as described herein were used to isolate target nucleic acids, as described in subsequent Examples, below."

Example 9 is one such example. There (column 25) it is seen that glycidyl-histidine ion exchange particles selectively bound DNA in a bacterial lysate. Such a showing is in direct contradiction of the asserted affinity of the same particles in the present application. It is further noted that the inventorship of '199 patent comprises at least two individuals that appear to be co-inventors of the subject application.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 8, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. As presently worded, the method of said claims 1, 8, and 21 require either the cells or their membranes, etc., to bind "directly to the particles." Dependent claims 7, 15, and 19, however, further limit the particles to where they comprise a polypeptide moiety that is bound to the surface and to which the cell or cellular membrane binds. The aspect of having any moiety on the surface of the particle effectively broadens the scope of the claims and allows for the claims to be interpreted as permitting virtually any molecule to be bound thereto.

10. Claims 2-7, 9-20, 22-25, and 27-29, which depend therefrom, fail to overcome this issue and are similarly rejected.

11. Claim 8 is indefinite with respect to what constitutes "second magnetic particles." It is further noted that there is no first magnetic particles. Claims 9-15, which depend from claim 8, fail to overcome this issue and are similarly rejected.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

> (f) he did not himself invent the subject matter sought to be patented.

13. Claims 1, 3, 4, and 6 rejected under 35 U.S.C. 102(b) as being anticipated by Margel (US Patent 4,861, 705).

14. Margel, columns 1 and 2, disclose agarose particles that can be configured so to be an ion exchange resin as well as being magnetic. Disclosed therein is the use of said particles for

affinity chromatography and cell separation. Column 1 discloses that the ion exchange particles are compatible with blood. Example 35, columns 9-10, teach the use of magnetic beads that have an amino-spacer bound thereto that is used in the separation of blood cells.

15. Claims 1-25 and 27-29 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. The method of claims 1-25 and 27-29 requires the mixing of pH-dependent ion exchange particles and/or silica magnetic particles with either cells or cell membranes. The disclosure of Smith et al., discloses just such method steps. Additionally, the patent to Smith et al., (US Patent 6,3310,199 B1) identifies at least one individual that is not a co-inventor of the subject application.

16. Upon review of the records at the USPTO, it appears that the subject application was not assigned to Promega until April 11, 2000, while said application was filed on December 30, 1999. Accordingly, it does not appear that the subject application was commonly owned at the time of filing and as such, is available art under 35 USC 102(f).

17. Claims 8-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. (US Patent 6,310,199 B1).

18. As presently worded, the method of claims 8-20 has been interpreted as allowing the for formation of any given type of complex on the surface of the specified particles, including that of nucleic acids; and the subsequent separation of such a complex from the remainder of the disrupted biological sample, thereby effecting at least a partial clearing of the solution.

19. Smith et al., discloses the use of these very particles in a method whereby disrupted biological material is cleared of nucleic acid sequences.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claims 1-7, 21-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al., (US Patent 6,344,326 B1) in view of Margel (US Patent 4,861,705), Smith et al., (US Patent 6,310,199 B1), taken with Smith et al. (US Patent 6,027,945).

24. Nelson et al., column 19, disclose a method of isolating one or more components from a solution where a first and second capture agent is used. As seen at column 21, the targeted biological material can be cells, cell membranes, nucleic acids, etc.

25. Nelson does not disclose the use of the specific particles recited in the claimed method at issue.

26. Margel, columns 1 and 2, disclose agarose particles that can be configured so to be an ion exchange resin as well as being magnetic. Disclosed therein is the use of said particles for affinity chromatography and cell separation. Column 1 discloses that the ion exchange particles are compatible with blood. Example 35, columns 9-10, teach the use of magnetic beads that have an amino-spacer bound thereto that is used in the separation of blood cells.

27. Margel does not disclose using the resin for the isolation or concentration of cell when silica magnetic particles are used, nor the isolation of a target nucleic acid.

28. Smith et al., (US Patent 6,310,199 B1) disclose a method whereby a target nucleic acid, , be it DNA, RNA, plasmid DNA, etc., is isolated from disrupted biological material wherein the very particles recited in the same claims are used; see columns 8-11.

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the procedure of Nelson et al., with the methods of Margel, Smith et al., and Smith et al., whereby a first population of particles are used to clear cell membranes and the like from a solution (Margel) and where a second population of particles is used to isolate the nucleic acids present (Smith et al., and/or Smith et al.). In view of the well-developed nature of the art, and the explicit guidance provided, the ordinary artisan would have been both highly motivated and would have had a reasonable expectation of success.

Double Patenting

30. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

31. Claims 8-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 37, 38, 41, 45, 52-54, and 56-57 of U.S. Patent No. 6,310,199 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the subject application broadly encompass the method of isolating target nucleic acid more narrowly claimed in the '199 patent.

32. Claims 8-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 6,027,945. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims encompass the isolation of nucleic acids from disrupted biological material.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (703) 308-3978. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

35. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Bradley L. Sisson
Primary Examiner
Art Unit 1634

bls
April 3, 2002